REMARKS

Claims 11, 13 to 17 and 19 to 21 were rejected under 35 U.S.C. §112, second paragraph. Claims 11, 13, 14, 16, 17, 19 and 20 were rejected under 35 U.S.C. §102(b) as being anticipated by Eckelmeyer, U.S. Patent No. 4,271,379. Claims 11, 13 and 17 were rejected under 35 U.S.C. §102(b) as being anticipated by Ikeguchi, U.S. Patent No. 5,263,413. Claims 15 and 21 were rejected under 35 U.S.C. §103(a) for being unpatentable as obvious over Ikeguchi in view of Eckelmeyer.

Claim 11 is hereby amended. Support for the amendment may be found in paragraphs [0027] and [0028], for example.

Reconsideration of the application based on the foregoing amendments and following remarks is respectfully requested.

Rejections under 35 U.S.C. §112

Claims 11, 13 to 17 and 19 to 21 were rejected under 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential structural cooperative relationship of elements.

Claim 11 is hereby amended to recite "a further synthesizer coupled to the control interface." Applicants respectfully submit the "further synthesizer" is an element of the evaluation unit and connected to the control interface. Support for the amendment may be found in paragraphs [0027] and [0028], for example.

Withdrawal of the rejection to claim 11, and the claims dependent thereon, under 35 U.S.C. §112, second paragraph, is respectfully requested.

Rejections under 35 U.S.C. §102(b)

Claims 11, 13, 14, 16, 17, 19 and 20 were rejected under 35 U.S.C. §102(b) as being anticipated by Eckelmeyer, U.S. Patent No. 4,271,379.

Eckelmeyer discloses encoders 52, 54 associated with respective first and second motors 25, 50 to produce pulse trains which are compared for motor speed relationship. (Fig. 1, col. 3, lines 35 *et seq.*). If the relationship is not correct, the energization of the second motor is varied to correct the error. (Id.).

As amended claim 11 recites "[a] rotary element of a printing press comprising:

an encoder for generating a periodic first signal in response to rotation of the rotary element; and

an evaluation unit linked to the encoder having:

a first synthesizer for generating a second signal having a resolution ratio, a frequency ratio, and a phase relation to the first signal,

a control interface for data exchange coupled to the first synthesizer for setting at least one of the resolution ratio, the frequency ratio and the phase relation of the first signal to the second signal based on data input by a user and transmitted to the first synthesizer, and

a further synthesizer coupled to the control interface for generating a further signal, the further signal having a further resolution ratio, a further frequency ratio, and a further phase relation to the first signal, at least one of the further resolution ratio or the further frequency ratio or the further phase relation of the further signal being different from the resolution ratio, frequency ratio or phase relation, respectively, of the second signal,

the second signal and the further signal being mutually independent from one another,

the control interface for data exchange setting at least one of the one of the resolution ratio, the frequency ratio and the phase relation of the first signal to the further signal based on data input by a user and transmitted to the further synthesizer."

The Office Action asserts that in Eckelmeyer an encoder 54 generates "a first signal," a multiplier 82 and a divider 84 act together as a "first synthesizer" to generate "a second signal" and an encoder 52 acts as a "further synthesizer" to generate "a further signal." The Office Action alleges that the asserted "second signal" and "further signal" are mutually independent of each other because, "while the signals are intended to effect a synchronization, they are not coupled, the second signal is based on the output of motor 50, albeit scaled, and the further signal [is] based on the output of motor 25." See Office Action page 4. Eckelmeyer does not show or teach "the second signal and the further signal being mutually independent from one another" as recited in claim 11.

First, in Eckelmeyer, nip roller 34 is driven by a motor 50 that includes an encoder 54. The line shaft 24 of the printing press is driven by a motor 25 that includes an encoder 52. Encoder 52 and encoder 54 each generate a signal which is supplied to motor control circuit 56.

"In order to achieve relative changes in the speed relationship between press unit and the nip rolls, motor control circuit 56 is provided with means for adjusting the number of pulses produced per revolution of encoder 54 so as to thereby electronically vary the encoder pulse rate, as opposed to changing encoders." See col. 3, lines 46 to 54. Eckelmeyer uses the signal from encoder 52 to change the signal from encoder 54 as desired. This is done by feeding the signal from encoder 52 to motor control circuit 56 which subsequently controls encoder 54 via motor 50. Thus, the signal from encoder 52 and encoder 54 are not "mutually independent from one another." Since the signal generated by encoder 54 is the input for multiplier 82 and divider 84, the signal from encoder 52 and the signal generated by multiplier 82 and divider 84 also are not "mutually independent from one another" as recited in claim 11.

Second, multiplier 82 and divider 84 are used to convert the signal received from encoder 54 "so that the output pulse train from the divider, at the rated press speed with 0.0% gain by roll 34, will be 100 Hz or ***exactly the same*** as the divided down rate from the press line shaft encoder 52." Eckelmeyer discloses using the signal from encoder 52 as a reference for the output signal generated multiplier 82/divider 84. It is a mischaracterization of the teachings in Eckelmeyer to suggest the signal generated by multiplier 82/divider 84 is "mutually independent" from the very signal multiplier 82/divider 84 is being used to replicate. When the signal from encoder 52 changes, the signal generated by multiplier 82/divider 84 changes so they are "***exactly the same.***" Thus, the signal from encoder 52 and the signal generated by multiplier 82/divider 84 are not "mutually independent from one another."

Third, the Office Action alleges that "the second signal [from multiplier/divider 84] is based on the output of motor 50, albeit scaled, and the further signal [from encoder 52] [is] based on the output of motor 25." A prior art reference must be considered in its entirety, i.e., as a whole including portions that would lead away from the claimed invention. See MPEP 2141.02. Eckelmeyer discloses that the speed of motor 50 is controlled based on the signals generated by encoder 52 and the speed of motor 25. The signal generated by encoder 54 may be a result of the speed of motor 50, however, the speed of motor 25 and the signal generated from encoder 52 are used to control the speed of motor 50. Thus, Eckelmeyer does not teach a "the second signal and the further signal being mutually independent from one another" as recited in claim 11.

In addition, Eckelmeyer also does not show encoder 52 being coupled to "the control interface for data exchange" or "the control interface for data exchange setting at least one of the one of the resolution ratio, the frequency ratio and the phase relation of the first signal to the further signal based on data input by a user and transmitted to the further synthesizer" as now recited in claim 11.

Withdrawal of the rejections to claims 11, 13, 14, 16, 17, 19 and 20 under 35 U.S.C. §102(b) is respectfully requested.

Claims 11, 13 and 17 were rejected under 35 U.S.C. §102(b) as being anticipated by Ikeguchi, U.S. Patent No. 5,263,413.

Ikeguchi discloses converting a speed command input to a digital value at regular intervals to integrate the digital value, the revolution speed of each of the printing rolls is also integrated, and any deviation between these integrated values is subject to PI operation, thereby separately correcting the revolution speed commands given to drive motors on the basis of their corresponding results of the PI operation. See Abstract.

As amended claim 11 recites "[a] rotary element of a printing press comprising:

an encoder for generating a periodic first signal in response to rotation of the rotary element; and

an evaluation unit linked to the encoder having:

a first synthesizer for generating a second signal having a resolution ratio, a frequency ratio, and a phase relation to the first signal,

a control interface for data exchange coupled to the first synthesizer for setting at least one of the resolution ratio, the frequency ratio and the phase relation of the first signal to the second signal based on data input by a user and transmitted to the first synthesizer, and

a further synthesizer coupled to the control interface for generating a further signal, the further signal having a further resolution ratio, a further frequency ratio, and a further phase relation to the first signal, at least one of the further resolution ratio or the further frequency ratio or the further phase relation of the further signal being different from the resolution ratio, frequency ratio or phase relation, respectively, of the second signal,

the second signal and the further signal being mutually independent from one another,

the control interface for data exchange setting at least one of the one of the resolution ratio, the frequency ratio and the phase relation of the first signal to the further signal based on data input by a user and transmitted to the further synthesizer."

In Ikeguchi, the only input disclosed is reference signal V_{REF} concerning the reference speed of the press. Servomotors 13_1, 13_2, 13_3 are driven according to a command obtained by using common internal speed command V_{REF} as a reference and correcting common internal speed command V_{REF} on the basis of the deviation between its corresponding feedback position signal and reference positional command X_{REF}.

The Office Action identifies the recited "control interface for data exchange" as speed setter 2 in Ikeguchi. Speed setter 2 generates V_{REF} as shown in Fig. 4, however, speed setter 2 does not "set[] at least one of the resolution ratio, the frequency ratio and the phase relation of the first signal to the second signal based on data input by a user and transmitted to the first synthesizer" as recited in claim 11.

Ikeguchi also does not disclose speed setter 2 "setting at least one of the one of the resolution ratio, the frequency ratio and the phase relation of the first signal to the further signal based on data input by a user and transmitted to the further synthesizer" as now recited in amended claim 11.

Withdrawal of the rejections to claim 11, 13 and 17 under 35 U.S.C. §102(b) is respectfully requested.

Rejections under 35 U.S.C. §103(a)

Claims 15 and 21 were rejected under 35 U.S.C. §103(a) for being unpatentable as obvious over Ikeguchi in view of Eckelmeyer.

Claims 15 and 21 depend directly from claim 11. Eckelmeyer does not disclose the limitations not present in Ikeguchi discussed above with respect to claim 11. Since Ikeguchi in view of Eckelmeyer does not show or teach each of the limitations recited in claim 11, withdrawal of the rejections under 35 U.S.C. §103(a) to claims 15 and 21 for these same reasons is respectfully requested.

CONCLUSION

The present application is respectfully submitted as being in condition for allowance and applicants respectfully request such action.

Respectfully submitted,
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